

IOM DISPLACEMENT TRACKING MATRIX (DTM)

Advancing Geospatial Data Interoperability and Workflows in
Alignment with the UN80 Initiative

*Mohamed Bakr – GIS Manager
mbakr@iom.int*

GIS FOR GOOD MEET-UP AND TECHNICAL EXCHANGE

Agenda



- DTM Coverage
- Data Overview
- DTM Methodology
- DTM Open Data
- Objectives (Why?)
- GIS Admin data (What?)
- DTM API Workflow (HOW?)
- DTM Data Interoperability Process

DATA OVERVIEW



INTRODUCTION



DISPLACEMENT
TRACKING MATRIX

DTM - YEAR IN REVIEW

OVERVIEW



159.5M*

TOTAL POPULATION RECORDED
*Number includes IDPs, Returnees and Migrants and other population categories



57.3M

TOTAL IDPS IDENTIFIED



39.4M*

TOTAL RETURNEES
*The total number of returnees includes 33.7 million internal returnees and 5.6 million returnees from abroad.



7.1M

TOTAL MIGRANTS



OPERATIONS



91

ACTIVE DTM
OPERATIONS*

*127 countries have had DTM activity since 2004



592

TECHNICAL
EXPERTS

Includes coordinators, as well as various consultants and specialists.



11,578

DATA COLLECTORS

The gender breakdown of the total count is 75% males and 25% females.



531,634

KEY INFORMANTS

with 19,698 focus group discussion participants involved in 2024

PUBLICATIONS



2,756

OVERALL PUBLICATIONS

- 2,299 PUBLISHED REPORTS
- 308 PUBLISHED DATASETS (ON EITHER HDX AND DTM WEBSITE)
- 149 PUBLISHED MAPS

DOWNLOADS



2.5M

DOWNLOADED REPORTS, DATASETS & MAPS



200,185

DATASETS DOWNLOADED (ON BOTH HDX AND DTM WEBSITE)



66,188

API REQUESTS

TOP 10 OPERATIONS BY PRODUCT UPLOADS & DOWNLOADS



91%

OF HNOs/HRPs WERE INFORMED BY DTM DATA & ANALYSIS (21 OUT OF 23 COUNTRIES)

1.3M

TOTAL PAGE VIEWS ON DTM WEBSITE

WITH AN AVERAGE OF 115,000 MONTHLY PAGE VIEWS

- DTM gathers and analyzes operational data on **displaced and mobile populations**.
- DTM has **active operations in 91 countries** around the world.
- DTM's role has expanded to **inform post-crisis interventions** and has become valuable for **policy-making and research** due to its extensive operational reach and regularly updated data adopting to various crises, including conflicts, climate shocks and prolonged emergencies.
- Key contributions to data and analysis for **climate-induced mobility, fragility and durable solutions**

METHODOLOGY AND TYPES OF DATA COLLECTION

Who?



POPULATION

- Internally displaced persons
- Returnees
- Migrants

Where? When?



LOCATION

- Sites and camps
- Transit points
- Host community

Where? When?



MOBILITY

- Internal flows
- Cross-border
- Spontaneous or organized
- Displacement and returns



BASIC NEEDS/ VULNERABILITIES

- Intersectoral Needs
- GBV and Protection indicators



CONDITIONS

- Quality of services
- Infrastructure
- Livelihoods

DTM OPEN DATA



GLOBAL DATA INSTITUTE
DISPLACEMENT
TRACKING MATRIX

IOM GLOBAL | GDIEN | ES | FRLOG IN



DTM API

Making global data on internal displacement accessible and reliable

The Displacement Tracking Matrix application programming interface (API) accelerates secure sharing of data on internal displacement, simplifying access to data across users and partners to support action, insight and foresight.



SHARE



Jun 06 2024

Print

TECHNICAL DOCUMENTATION

TOOLS

SAMPLE CODES

ABOUT API

As of 15 August 2024 DTM has introduced a new version of our API Library based on feedback from version 1 users. We have now introduced GET methods to allow users that cannot use a 3rd party API tool to be able to directly call the API from within a Browser. In addition, we have improved the parameter validation, updated some return types (for consistency) and simplified the parameters you need to pass.



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IDPs & Returnees
Admin Level 2



IOM's Displacement Tracking Matrix (DTM) Global Data - Admin2

Global Displacement Tracking Matrix (DTM) Data: Internally Displaced Persons and Returnees data aggregated at administrative level 2 based on available data

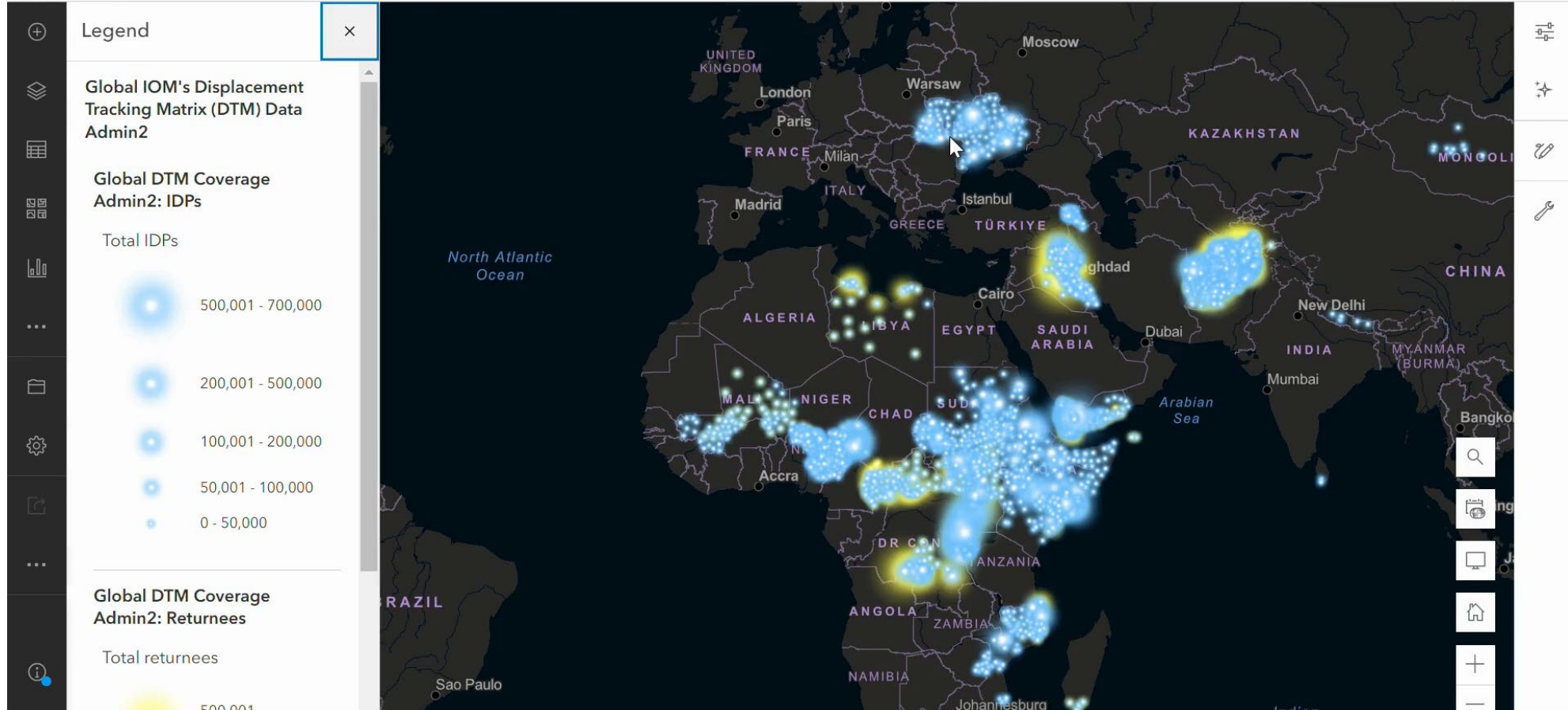


IDPs & Returnees
Admin Level 1



IOM's Displacement Tracking Matrix (DTM) Global Data - Admin1

Global Displacement Tracking Matrix (DTM) Data: Internally Displaced Persons and Returnees data aggregated at administrative level 1 based on available data





Data Collection

Shelter Detection
Damage Assessment
Buildings Footprint
Emergency Response
Change Detection



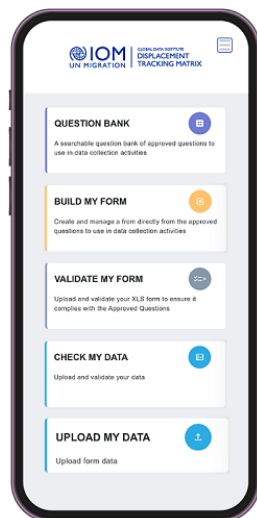
GeoAI



Central Data Warehouse



<https://dtm.iom.int/>



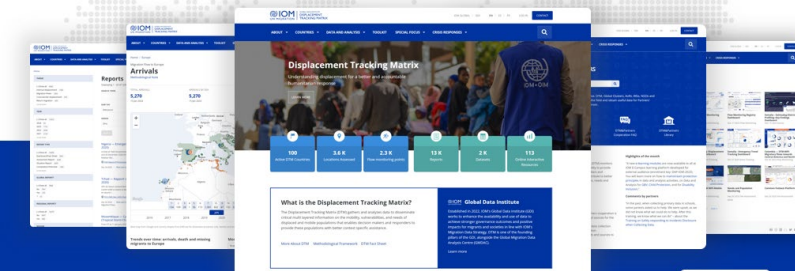
<https://dtm.iom.int/dtm-data-kit>



DTM API

<https://dtm.iom.int/data-and-analysis/dtm-api>

DTM GLOBAL PORTAL



DATASETS | REPORTS | MAPS | INTERACTIVE RESOURCES



DTM Data Portal
One UN Geospatial Situation Room
Humanitarian Data Exchange (HDX)
Living Atlas of the World

Objectives (Why?)

- Achieve data interoperability with CODs-AB and the humanitarian community
- Facilitate GIS data accessibility to DTM data users
- Allow user to visualize the DTM data seamlessly
- **Contributes to UN80 Data Quint on Geospatial data**

GIS Admin Data (What?)

Country Level

- Data collection using local GIS admin boundaries (commonly used in country)

Regional Level

- Regional database and regional consolidation

Global Level

- Global data consolidation, verification (with CODs-AB) and dissemination (Global website, API, etc..)

OCHA CODs-AB

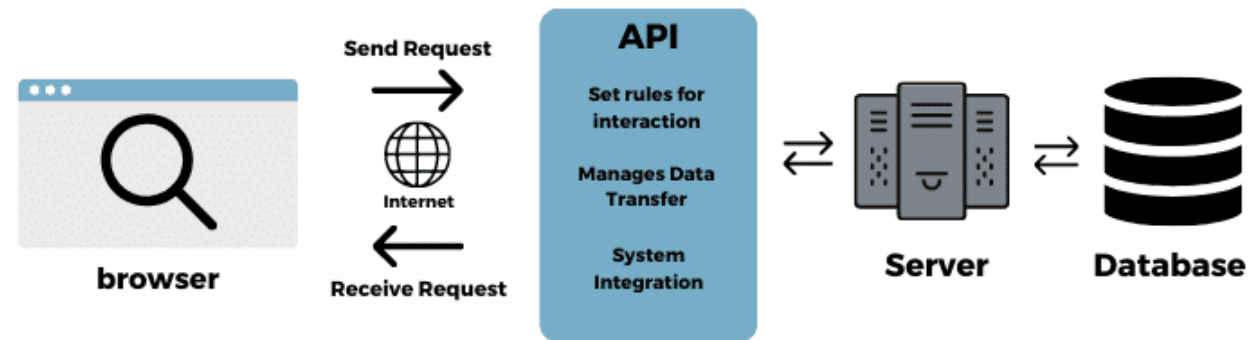
- Authoritative reference datasets for the humanitarian community

Common admin level on DTM API

- DTM data is collected at the lowest admin level worldwide
- Commonly and publicly available is at sub-national level which is admin2
- Some countries in conflict situation where admin2 is not available we had to produce operational zones

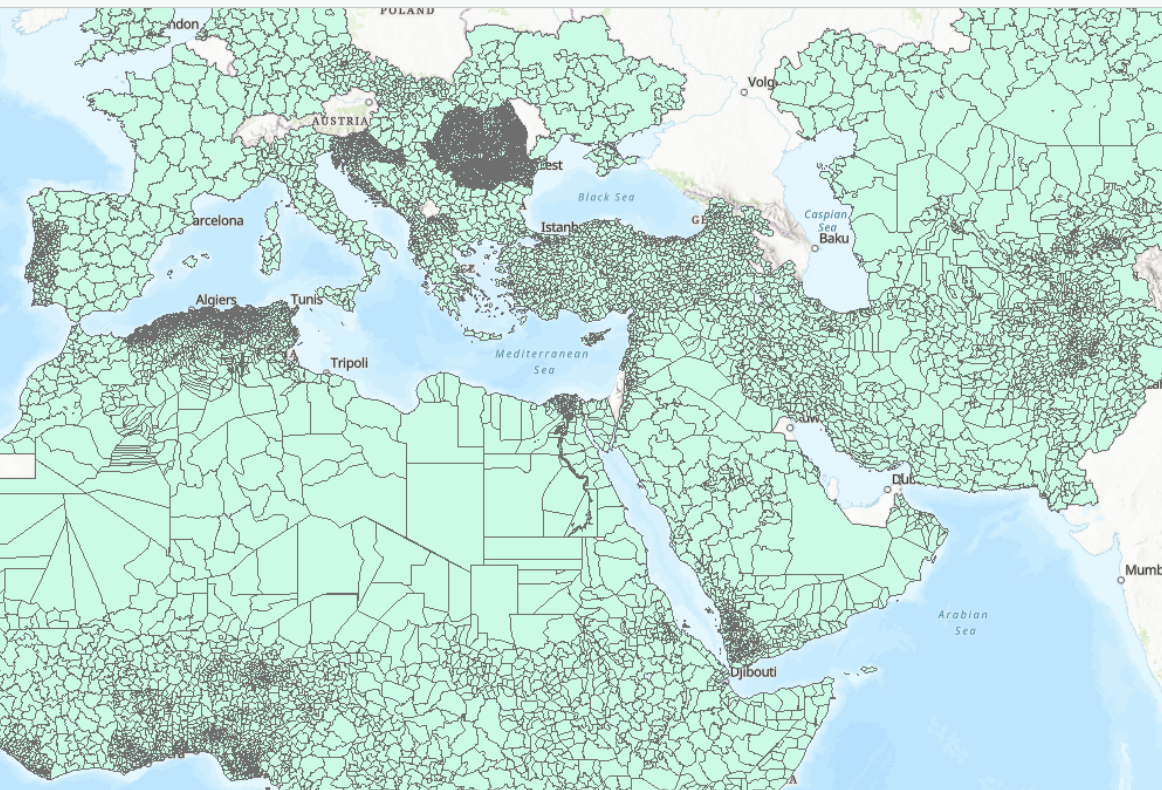
DTM API Workflow (How?)

In a simple way....

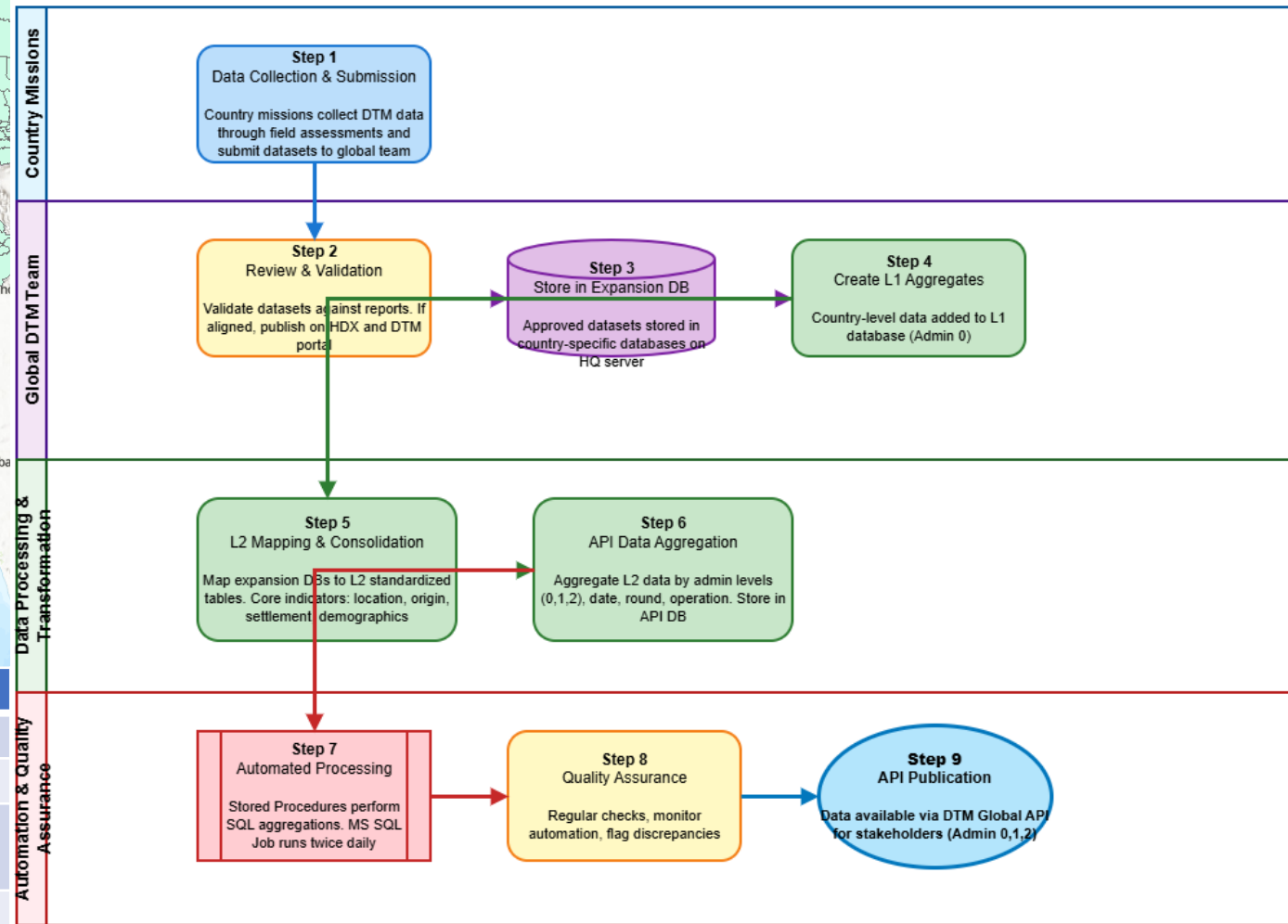


DTM API Workflow (How?)

From country level data collection to global API



DTM Data Compilation Process - From Submission to Global API



Metric	Value
Total country/global datasets	170
Total downloadable resources	697
Countries with all 4 core formats (GDB, SHP, GeoJSON, XLSX)	104
Scrape frequency	Monthly

DTM Data Interoperability Process

PHASE 1: DATA COLLECTION

GIS Admins
Country Level

Country Missions

① Data Collection

- Field assessments
- Local data gathering
- Initial quality checks



② Submission

- Submit datasets
- Include metadata
- Reference reports

PHASE 3: DATA PROCESSING & TRANSFORMATION

Aligning with
CODs-AB

Automated Pipeline

⑦ L2 Mapping

- Map to L2 tables
- Standardize indicators
- Admin 2 level detail

Core indicators:

Location • Origin • Settlement • Demographics



⑧ API Aggregation

- Multi-level aggregation
- Temporal grouping
- Store in API DB

Aggregate by:

Admin 0/1/2 • Date • Round • Operation

PHASE 2: VALIDATION & STORAGE

GIS Data
Validation

Global DTM Team

③ Review & Validation

- Cross-check with reports
- Validate data quality
- Verify completeness



Approved?



④ Publish

- HDX platform
- DTM portal



⑤ Expansion DB

- Country-specific DBs
- HQ server storage



⑥ L1 Aggregation

- Admin 0 level
- Country summaries

🔄 **Rejection Loop:** If not approved, data is sent back to Country Missions for revision and resubmission

PHASE 4: AUTOMATION & PUBLICATION

Access CODs
data through
DTM API

Production System

⑨ Automated Processing

- Stored procedures
- SQL aggregations
- Runs 2x daily



⑩ Quality Assurance

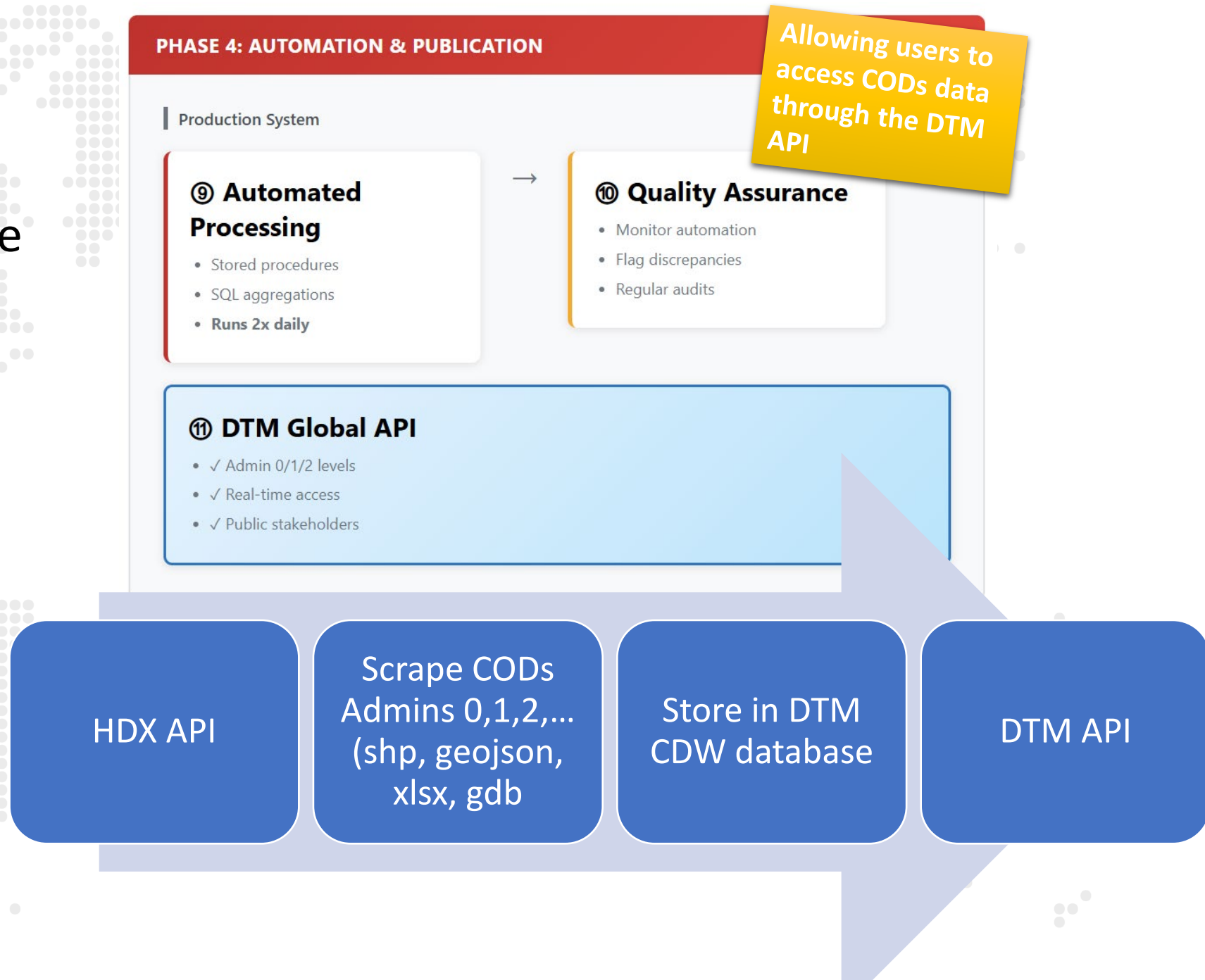
- Monitor automation
- Flag discrepancies
- Regular audits



⑪ DTM Global API

- ✓ Admin 0/1/2 levels
- ✓ Real-time access
- ✓ Public stakeholders

- Direct Access through the DTM API
- GIS admin files and Displacement Data are all available in one place
- No need to download displacement data from one site and GIS admins from another location
- Provide more consistency on updating and aligning with OCHA CODs



API Referenced Admin Boundaries

Visit cod.unocha.org for the latest information about UN COD layers. Data below is automatically extracted from the [ITOS ArcGIS Server](#) before processed for edge matching. Extended layers can be downloaded and clipped to any ADM0, with the original layer available for reference.

To obtain a list of global P-Codes used in global edge-matched subnational boundaries: [json](#) | [csv](#) | [xlsx](#)

The Geographic Admin boundaries listed below are the most up to versions publicly available CODs-AB on OCHA's HDX. When DTM operations deviate from the publicly available CODs-AB files, please email DTMGIS@iom.int for the operational versions. The direct download files available are the versions that the DTM Displacement is referenced to via the P-Codes.

For previous versions of the administrative boundaries, please email DTMGIS@iom.int.

ISO3	COUNTRY NAME	FORMAT	DESCRIPTION	ADMIN LEVEL	VALID FROM
AFG	Afghanistan	GEODATABASE SHP GEOJSON XLSX ⓘ	Afghanistan administrative level 0-2 boundaries (COD-AB), Geodatabase	0-2	Nov 2021
ATG	Antigua and Barbuda	XLSX SHP EMF GEODATABASE ⓘ	Antigua and Barbuda administrative level 0 (country) and 1 (parish, dependency) gazetteer	0	NULL
ARM	Armenia	GEODATABASE SHP GEOJSON XLSX ⓘ	Armenia administrative level 0-2 boundaries (COD-AB), Geodatabase	0-2	Oct 2023
Expand Bahamas (BHS) 4 entries					
BGD	Bangladesh	GEODATABASE SHP GEOJSON XLSX ⓘ	Bangladesh administrative level 0-3 boundaries (COD-AB), Geodatabase	0-3	May 2023
BEN	Benin	GEODATABASE SHP GEOJSON XLSX ⓘ	Benin administrative level 0-2 boundaries (COD-AB), Geodatabase	0-2	Aug 2019
BOL	Bolivia (Plurinational State of)	GEODATABASE SHP GEOJSON XLSX ⓘ	Bolivia (Plurinational State of) administrative level 0-3 boundaries (COD-AB), Geodatabase	0-3	Sep 2024

This contributes towards making operational internal displacement data interoperable with key geographic administrative boundaries under the commitment of the Data Qunit and Humanitarian Reset.

DTM GLOBAL PORTAL

Displacement Tracking Matrix
Understanding displacement for a better and accountable humanitarian response

100 Active DTM Countries

3.6 K Locations Assessed

2.3 K Flow monitoring points

13 K Reports

2 K Datasets

113 Online Interactive Resources

What is the Displacement Tracking Matrix?
The Displacement Tracking Matrix (DTM) gathers and analyzes data to disseminate critical multi-layered information on the mobility, vulnerabilities, and needs of displaced and mobile populations that enables decision makers and responders to provide these populations with better context-specific assistance.

Global Data Institute
Established in 2022, IOM's Global Data Institute (GDI) works to enhance the availability and use of data to achieve stronger governance outcomes and positive impacts for migrants and societies in line with IOM's Migration Data Strategy. DTM is one of the founding pillars of the GDI, alongside the Global Migration Data Analysis Centre (GMDAC).

Highlights of the month
"4 new e-learning modules are now available to all at IOM E-Campus learning platform developed for external audience (enrollment key: DAP-IOM-2023). You will learn more on how to mainstream protection principles in data and analysis activities, on Data and Analysis for GBV, Child Protection, and for Disability Inclusion."

Comments by partners
"In the past, when collecting primary data in schools, some parents asked us to help. We were upset, as we did not know what we could do to help. After this training, we know what we can do" – about the Training on safely responding to incidents Disclosure when Collecting Data.

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THANK YOU
Mohamed Bakr – GIS Manager
mbakr@iom.int

BOOKMARK US

